

# JVC

## SERVICE MANUAL

### FULLY-AUTOMATIC DIRECT-DRIVE TURNTABLE

## MODEL L-F210/L-F210B



Type A

Model	Color Version
L-F210	Silver
L-F210B	Black

- There are two types of L-F210/L-F210B—type A and type B—depending on the type of tonearm.

The type A has an universal type tonearm and the type B has an integrated tonearm.

The cartridge is not provided on units of type A for the U.S.A. and Canada and the dust cover is not provided on units of type B for the U.S.A.

## Contents

Safety Precautions .....	Page			Page
1. Specifications .....	1-1			
2. Operation of Automatic Mechanism .....	1-2			
2-(1) Start/stop Mechanism .....	1-3			
2-(2) Lead-in Mechanism .....	1-4			
2-(3) Change Cycle Start Mechanism .....	1-4			
2-(4) Repeat Mechanism .....	1-5			
3. Removal and Reassembly Procedure .....				
3-(1) Removal of Cabinet .....	1-5			
3-(2) Reassembly of Cabinet .....	1-5			
3-(3) Removal of Pickup Base Ass'y .....	1-6			
3-(4) Reassembly of Pickup Base Ass'y .....	1-6			
3-(5) Reassembly of Anti-skating Lever .....	1-6			
4. Stylus Replacement .....	1-6			
5. Cartridge Mounting .....				
5-(1) Removal and mounting of the headshell .....	1-7			
5-(2) Mounting Cartridge .....	1-7			
6. Adjustment .....				
6-(1) Tracking Force Adjustment .....	1-7			
6-(2) Overhang Adjustment .....	1-8			
6-(3) Tonearm Elevator-height Adjustment .....	1-8			
6-(4) Lead-out Adjustment .....	1-8			
6-(5) Lead-in Adjustment .....	1-8			
6-(6) Speed Adjustment .....	1-8			
7. Power Cord Connections in Different Areas .....	1-9			
8. L-F210 Schematic Diagram .....	1-10			
9. Trouble Shooting .....	1-12			

## Safety Precautions

1. The design of this product contains special hardware, many circuits and components specially for safety purposes.

For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

2. Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (  $\Delta$  ) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and/or the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and they should be confirmed to be returned to normal, after re-assembling.
5. Leakage current check (Safety for electrical shock hazard)  
After re-assembling the product, always perform an isolation check on the exposed metal parts of the

Products (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

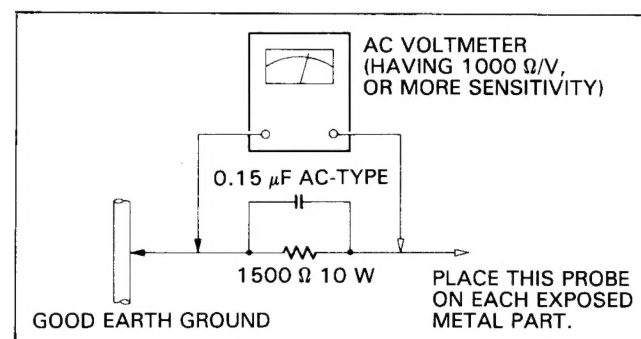
Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5 mA AC (r.m.s.).

- Alternate check method  
Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1500  $\Omega$  10 W resistor paralleled by a 0.15  $\mu$ F AC-type capacitor between an exposed metal part and a known good earth ground.

Measure the AC voltage across the resistor with the AC voltmeter.

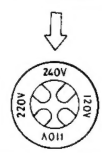
Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



### CHECKING YOUR LINE VOLTAGE (For U.S. Military Market and Other Countries)

Before inserting the power plug, please check this setting to see that it corresponds with the line voltage in your area. If it doesn't, be sure to adjust the voltage selector switch to the proper setting before operating this equipment. The voltage selector switch is located underneath the platter on the cabinet.

**CAUTION** Before selecting the "Voltage selector switch" to proper voltage disconnect the power plug.



## 1. Specifications

### MOTOR AND PLATTER

Drive system	: Fully-automatic direct-drive turntable
Driver Motor	: DC servo motor
Speeds	: 33-1/3 rpm and 45 rpm
Wow and Flutter	: 0.03% (WRMS) 0.055% (DIN)
Signal to Noise Ratio	: 78 dB (DIN-B)
Speed Adjustment	
Range	: $\pm 3\%$
Platter	: 12-inch (30.8 cm) diameter die-cast aluminium alloy

### TONEARM

#### (Type A)

Type	: Statically balanced straight tubular arm with JVC developed TH (Tracing Hold) balancing system and tracking force dial graduated in 0.1 gram steps.
Effective Arm Length	: 220 mm
Overhang	: 15 mm
Applicable Tracking	
Force Range	: 0 to 3 grams
Applicable Cartridge	: 9 grams to 12.5 grams (including headshell)
Weight	: 4.5 grams

#### (Type B)

Type	: Statically balanced and integrated straight tubular arm with JVC developed TH (Tracing Hold) balancing system
Effective Arm Length	: 220 mm
Overhang	: 15 mm
Applicable Cartridge	
Weight	: 5.9 grams

### CARTRIDGE

#### (Type A)

**Note: Not provided for the U.S.A. and Canada.**

Type	: Moving magnet (MD1055)
Stylus	: 0.6 mil. diamond for DT-55
Optimum Tracking	
Force	: 2.0 $\pm$ 0.25 grams
Output	: 2.5 mV (1 kHz 50 mm/sec. lateral)
Frequency Response	: 10 Hz to 22,000 Hz
Separation	: 25 dB (1 kHz)
Load Resistance	: 47 kohms
Compliance	: 7 $\times 10^{-6}$ cm/dyne (100 Hz Dynamic)
Tracking Ability	: 70 $\mu$ m at 315 Hz

#### (Type B)

Type	: Moving Magnet (MD1045)
Stylus	: 0.6 mil conical diamond for DT-45
Optimum Tracking	
Force	: 1.25 g
Output	: 2.5 mV (1 kHz 50 mm/Sec. lateral)
Frequency Response	: 10 Hz to 25,000 Hz
Separation	: 25 dB/1 kHz (test record: TRS-1)
Load Resistance	: 47 kohms
Compliance	: 9 $\times 10^{-6}$ cm/dyne (100 Hz dynamic)
Tracking Ability	: 80 $\mu$ m at 315 Hz

### GENERAL

Dimensions	: (Type A) 43.5(W) $\times$ 36.0(D) $\times$ 10.5(H) cm (17-3/16" $\times$ 14-3/16" $\times$ 4-3/16")
	: (Type B) 43.5(W) $\times$ 36.0(D) $\times$ 10.0(H) cm (17-3/16" $\times$ 14-3/16" $\times$ 3-15/16")
Net Weight	: (Type A) 4.9 kg (10.8 lbs) (Type B) 4.3 kg (9.5 lbs)

**Note:** Type B is only for the U.S.A. and the dust cover is not provided.

*Design and specifications subject to change without notice.*

### POWER SPECIFICATIONS

Countries	Line Voltage & Frequency	Power Consumption
U.S.A. & CANADA	AC 120 V, 60 Hz	6watts
CONTINENTAL EUROPE	AC 220 V $\sim$ , 50 Hz	9watts
U.K. & AUSTRALIA	AC 240 V $\sim$ , 50 Hz	
U.S. MILITARY MARKET	AC 110/120/220/ 240 V $\sim$ selectable, 50/60 Hz	
OTHER AREAS	AC 110/120/220/240 V $\sim$ selectable, 50/60 Hz	

# 2. Operation of Automatic Mechanism

## 2-(1) Start/stop Mechanism

### 1. Start

If you press the START/STOP button when the tonearm is on the rest, the mechanism operates as described below to turn ON the turntable's power and prepare to move the tonearm to the predetermined position on the record. Operation (See Fig. 1).

When the start rod is pushed in direction "a", the slider moves in direction "b". During this time, cam (D) of the slider pushes part (C) of the off lever, which is in turn rotated in direction "d", thus unlocking boss (E)

of the switch lever. Thereby, the microswitch switches ON to rotate the platter. On the other hand, as cam (B) of the slider pushes part (A) of the reject lever in direction "c", the trip lever is driven in direction "e". The trip lever drives the engagement in direction "f". As a result, the platter spindle gear engages with the main gear and the "change cycle" starts.

Fig. 2 shows the state at the end of the above operation.

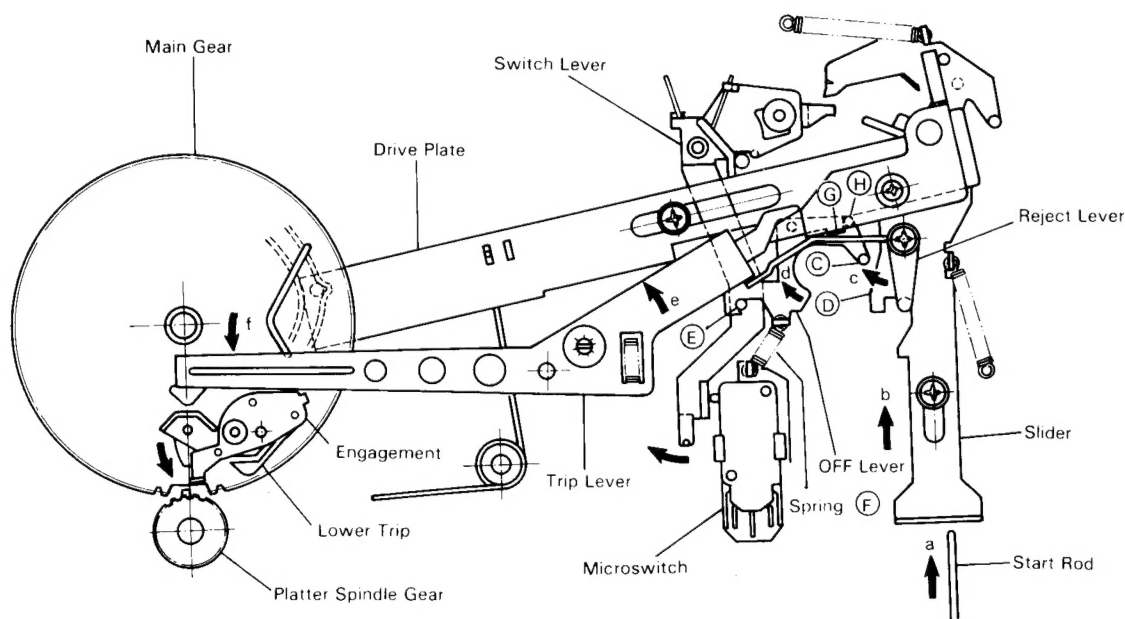


Fig. 1

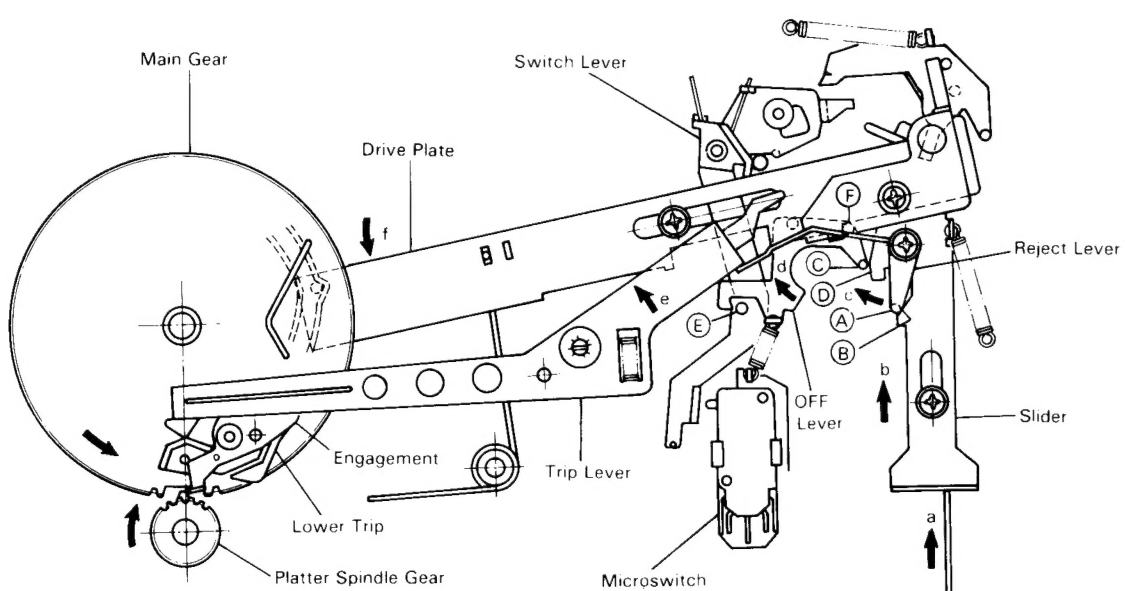


Fig. 2

### 2. Stop

Stop operation starts if the START/STOP button is pressed when the tonearm is in the "play" position (not on the rest).

Operation (See Fig. 2).

When the slider moves in direction "b", part (C) of the off lever is pushed. During this time, the switch lever is not driven with its boss (E) unlocked and the reject lever alone is pushed in direction "c". In this way, the trip lever is driven and the "change cycle" starts.

In the change cycle, the off lever prepares for locking boss (E) of the switch lever by spring (F). At the end of the change cycle, boss (H) of the off lever is pushed by part (G) of the drive plate. In this way, the switch lever returns to its initial position and the microswitch switches OFF. The series of operation ends in this condition.

## 2-(2) Lead-in Mechanism

When the change cycle starts and the main gear rotates, the drive plate is moved to rotate the elevator cam as shown in Fig.3.

As the elevator cam rotates with the linear motion of drive plate in direction "a", the elevator is pushed up by the sloping part of the elevator cam to lift the tonearm, at this motion the lead-in lever moves from the position as shown in Fig.4 to the position as shown in Fig.5.

At the end of the linear motion of the drive plate in direction "a", stud B (mold) of the lead-in lever enters the cam hole in the chassis base, then the lead-in lever rotates in direction "c", and arm lever stud (A) is held between lead-in lever and case as shown in Fig. 5, and the drive plate moves in direction "b". Arm lever stud (A) moves with the drive plate to move the tonearm onto the record.

According to the SIZE button setting (17 or 30 cm), the tonearm will be moved to the predetermined position on the record. Part (C) of the arm lever (See Fig. 6) contacts the index stopper (17 or 30 cm) and this determines the lead-in position, then the lead-in lever returns in direction to the initial position.

To adjust the arm lever position (lead-in position), screw the eccentric adjuster.

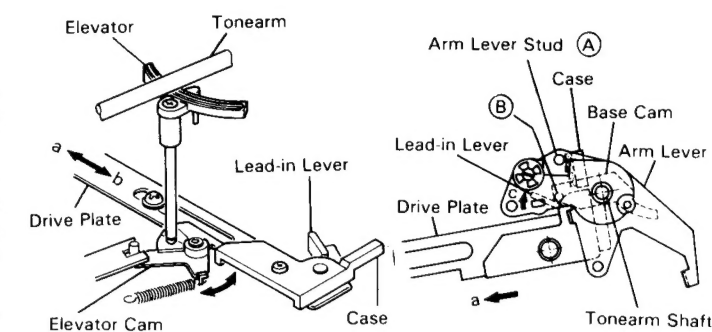


Fig. 3

Fig. 4

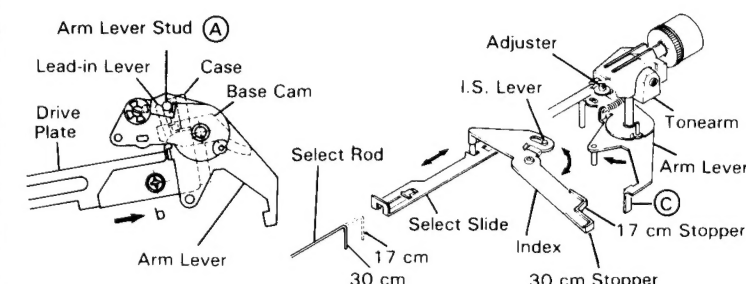


Fig. 5

Fig. 6

## 2-(3) Change Cycle Start Mechanism

During play, the relationship between the main gear notch and the platter spindle gear is as shown in Fig. 7. Since the projection is apart from the engagement, the main gear is stationary even when the platter is rotating. As play proceeds, the arm lever pushes the trip lever and this moves the lower trip which, in turn, gradually drives out the engagement mounted on the lower trip. The relationship between the engagement and the projection at this time is as shown in Fig. 8. When the pitch of the record groove is small, the pitch of engagement advance is also small and the engagement will be pushed by the projection. The main gear, therefore, remains stationary.

At the end of play, when the tonearm comes to the leadout groove having a larger pitch, the engagement advances more than the projection pushes it back and their relationship is now as shown in Fig. 9. The projection pushes the engagement, the main gear starts to turn, the main gear notch moves and the platter spindle gear engages with the main gear. Thus, the change cycle starts as the main gear starts to turn.

When the main gear stops turning, the relationship shown in Fig. 7 is restored and the main gear remains stationary even when the platter spindle gear turns.

On the other hand, the driven out engagement and lower trip are pushed back to their initial positions by the edge of the platter spindle gear just before the main gear stops turning. The cam of the main gear pushes the trip lever back to its initial position earlier than the engagement and lower trip. The return position can be fine-adjusted to start earlier or later by screwing the adjuster.

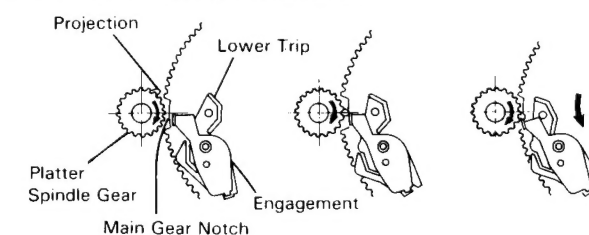


Fig. 7

Fig. 8

Fig. 9

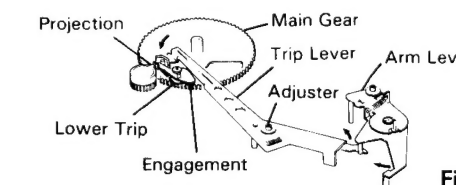


Fig. 10

### 2-(4) Repeat Mechanism

When the REPEAT knob is turned ON, the slider is placed in the position (where the slider contacts the stopper at part "A") shown in Fig. 11 and the mechanism operates to lead in the tonearm repeatedly to the same position. As the repeat rod moves in direction "a", the slider moves in direction "b" and stays there.

If the change cycle starts in this state, the lead-in lever turns in direction "c" and moves with arm lever stud (A). As the drive plate moves, the tonearm will be driven in direction "d" to perform the lead-in operation.

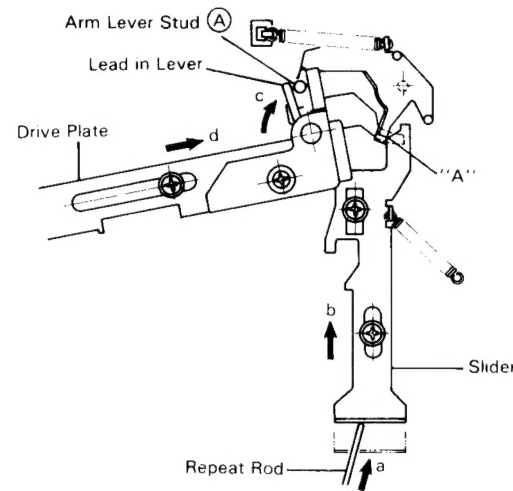


Fig. 11

## 3. Removal and Reassembly Procedure

### 3-(1) Removal of Cabinet

1. Remove feet (1) ~ (4) shown in Fig. 12.
2. Remove the cord stopper (5) of the signal cord as shown in Fig.12.
3. Remove the head shell and main weight from the tonearm.
4. Move the tonearm in direction of the center spindle as shown in Fig.13.
5. Lift the cabinet up, then remove the cabinet.

**Note:** When the cabinet touches the tonearm, this may damage the tonearm and the cabinet.

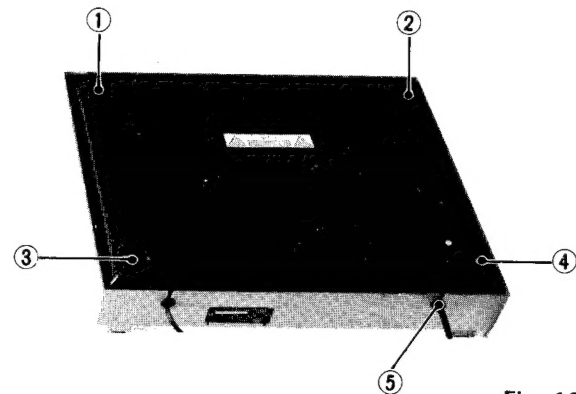


Fig. 12

### 3-(2) Reassembly of Cabinet

1. Set the operation switches on the front as follows:

Operation switch	Setting
SIZE	30
REPEAT	OFF
CUEING	DOWN

2. Set the tonearm as in Fig. 13.
3. Reassemble the cabinet.

**Note:** When remounting the feet (1) - (4), mount the feet having slipproof at the front side.

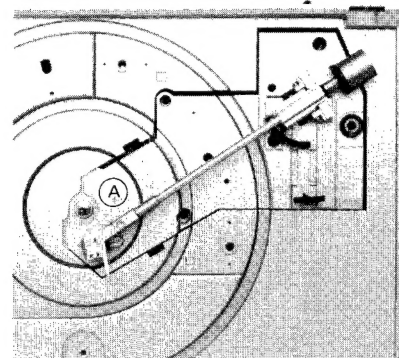


Fig. 13

### 3-(3) Removal of Pickup Base Ass'y

1. Remove screws (1) - (3) as shown in Fig. 14.
2. Remove screw (4) as shown in Fig. 15.

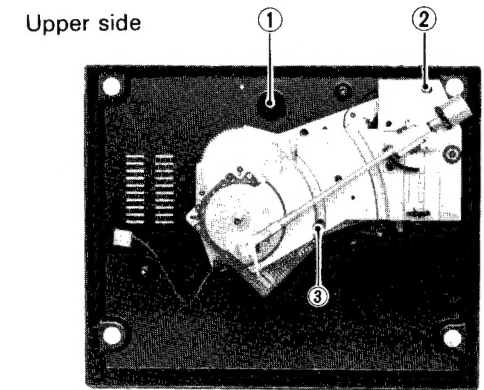


Fig. 14

### 3-(4) Reassembly of Pickup Base Ass'y

1. Push the switch lever by top of the finger as shown in Fig. 16, then mount the pickup base ass'y. So that, the stud of the arm lever is located as shown in Fig. 17.

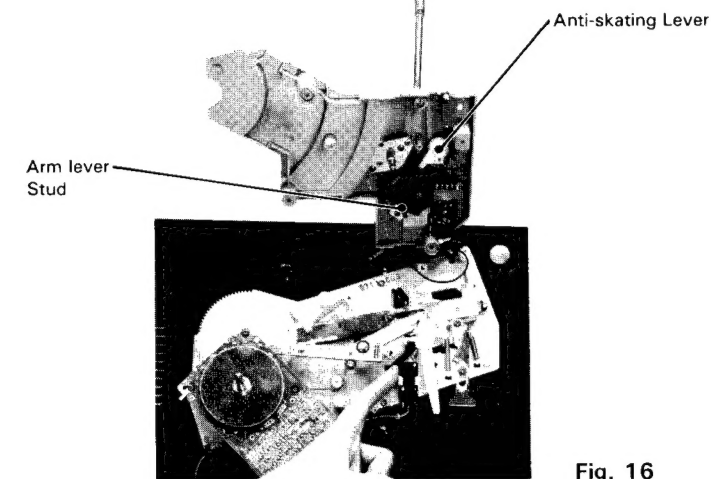


Fig. 16

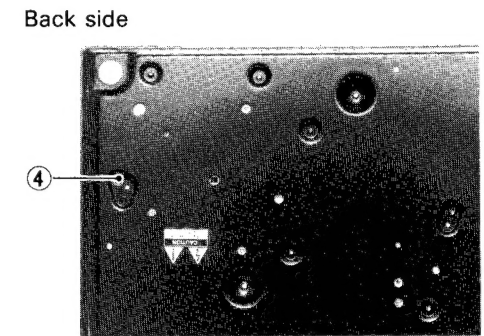


Fig. 15

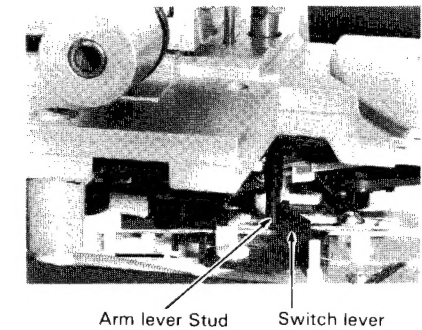


Fig. 17

### 3-(5) Reassembly of Anti-skating Lever

When mounting the anti-skating lever, set the anti-skating knob to "0" position.

## 4. Stylus Replacement

(Type A)

#### How to remove the old stylus

Hold the cartridge and press the stylus assembly downwards (Fig. 18).

#### How to fit a new stylus

1. Insert the lug of the stylus assembly vertically (Fig. 19).
2. Press it upwards with both fingers until it snaps in place (Fig. 18).

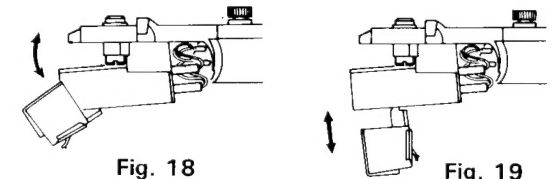


Fig. 18

Fig. 19

(Type B)

#### How to replace

1. Pull diagonally downwards the stylus assembly as shown by the arrow in Fig. 20.
2. To install the stylus assembly, push it upwards in the direction of the arrow.

**Note:** Replace the stylus assembly with the stylus cover fitted so as not to damage the stylus tip.

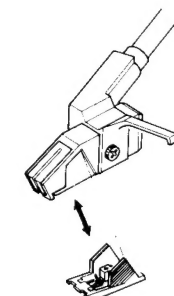


Fig. 20

# 5. Cartridge Mounting

## 5-(1) Removal and mounting of the headshell

### (Type A)

Turn the connector screw in direction "A" to remove the headshell from the tonearm. Fix it firmly when mounting the headshell. (Fig. 21)

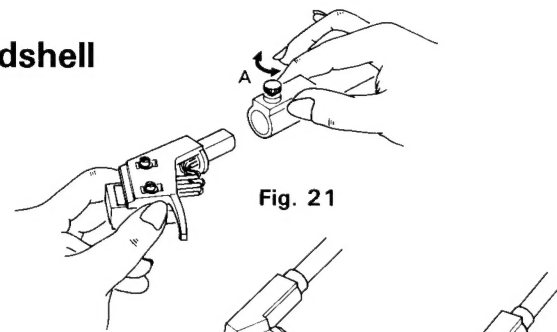


Fig. 21

### (Type B)

Remove the cartridge fixing screw and pull the cartridge forward. (Fig. 22)

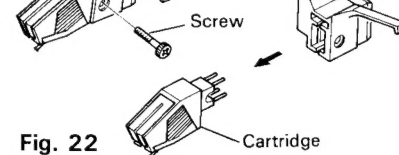


Fig. 22

**Note:** A plug-in cartridge is used for the L-F210/L-F210B. Therefore, specify a T4P cartridge (JVC Model No. Z-45EP) when purchasing a new cartridge.

## 5-(2) Mounting Cartridge (Type A) (Fig. 23)

1. Remove the 2 screws securing the cartridge to the headshell.
2. Install the cartridge onto the headshell provided.
3. The four headshell lead wires are colour-coded as follows; connect them correctly :
  - White(+) .....L    Red(+) .....R
  - Blue(-) .....LE    Green(-) .....RE
  - (Left)                      (Right)
4. Mount the cartridge onto the headshell correctly and leave the screws slightly loose, then, after completing the "overhang adjustment", tighten them firmly.
5. After cartridge replacement, be sure to perform the "tracking force" and "anti-skating" adjustment.

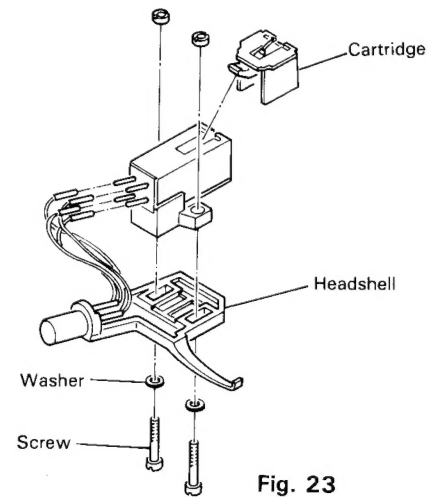


Fig. 23

# 6. Adjustment

## 6-(1) Tracking Force Adjustment (Type A)

1. Remove the stylus cover.
2. Slide the anti-skating knob to align its index mark with the "0" mark. (Fig. 21)
3. Slide the counterweight to the middle of the weight shaft and turn it until the tonearm is balanced with the stylus nearly touching the record surface. (Fig. 24)
4. Hold the counterweight at the adjusted position and turn the tracking force dial until the "0" mark is aligned with the index line on the tonearm weight shaft. (Fig. 25)
  - \* It is most important to obtain the correct tracking force.
5. Turn the counterweight, being sure not to turn the dial, in the direction 0-1-2 until the "2" mark on the tracking force dial is aligned with the index line. (Fig. 26)
  - \* Be careful not to touch the tracking force dial when turning the counterweight.
  - \* Turning the tracking force dial alone has no effect on the tracking force.
6. Slide the anti-skating knob until the index mark of the knob points to "2" (JVC MD1055) mark (Fig. 27)
  - Use the scale marked ● with a conical stylus and the scale marked ● with an elliptical or SHIBATA stylus.

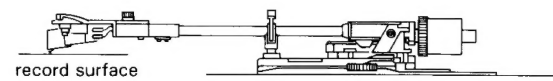


Fig. 24

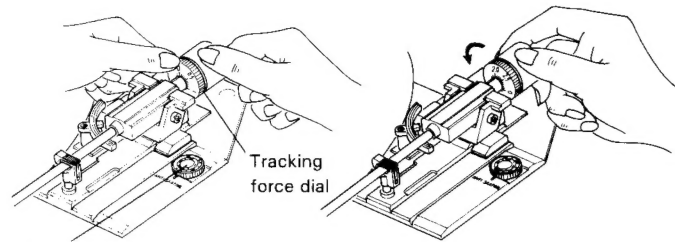


Fig. 25

Fig. 26

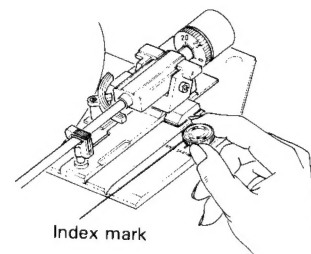


Fig. 27

## 6-(2) Overhang Adjustment (Type A)

Adjust the overhang as shown, aligning the center lines of the cartridge and the headshell. Leave 32 mm between the stylus tip and the edge of the headshell as shown. An error of  $\pm 1$  mm will not degrade performance.

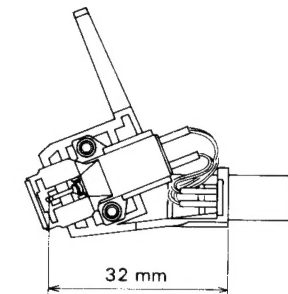


Fig. 28

## 6-(3) Anti-skating Adjustment (Type B)

Turn the anti-skating knob until the index mark of the knob points to the "1.25" mark.

## 6-(4) Tonearm Elevator-height Adjustment (Fig. 29)

The optimum clearance between the stylus tip and the record surface is about 6 mm when the tonearm is resting on the tonearm elevator (with the UP/DOWN knob switched to the UP position). Turning the adjusting screw clockwise lowers the height of the tonearm elevator and turning it counterclockwise increases it.

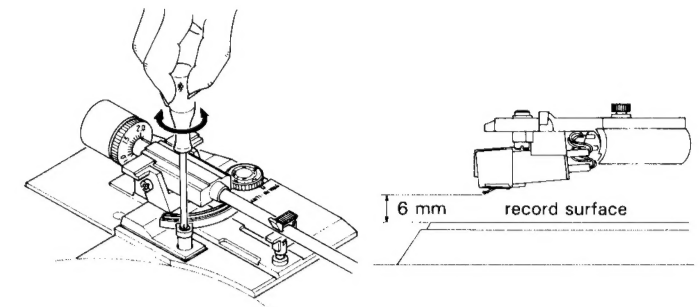


Fig. 29

## 6-(5) Lead-out Adjustment (Fig. 30)

Be sure to perform this adjustment posterior to the lead-in adjustment.

- When auto-return functions too late, turn the screw counterclockwise with a screwdriver.
- When auto-return functions too early, turn the screw clockwise.

When using test record, confirm the autoreturn functions as follows.

Test record	Auto-return function
RG652	To be returned
RG653	Not to be returned

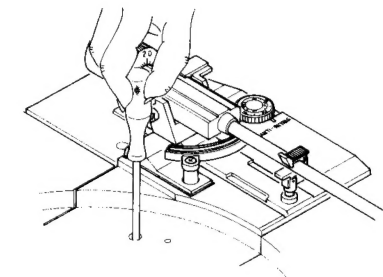


Fig. 30

## 6-(6) Lead-in Adjustment

The L-F210/L-F210B is shipped from the JVC factory with the lead-in positions adjusted correctly. However, if the stylus lead-in positions are to be changed because the cartridge or head-shell has been changed, etc., adjust in the following manner:

When using test record (RG-325).

Record size	Counter's numbers
30 cm	7 ~ 29
17 cm	5 ~ 34

**Note:** When completing this adjustment, be sure to check the lead-out position.

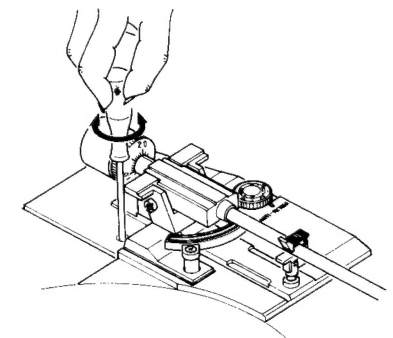


Fig. 31

## 6-(6) Motor RPM Adjustments

Make adjustments in the following order when proper RPM is not obtained even after motor replacement or repair.

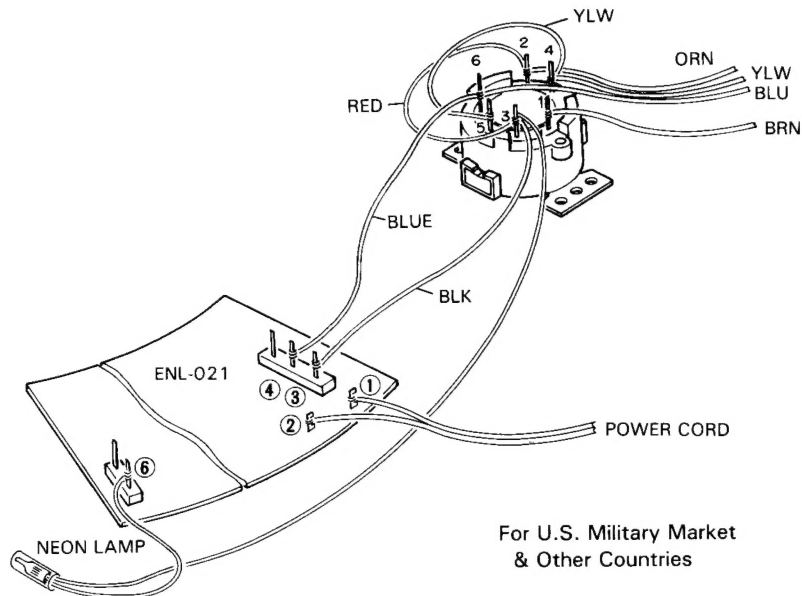
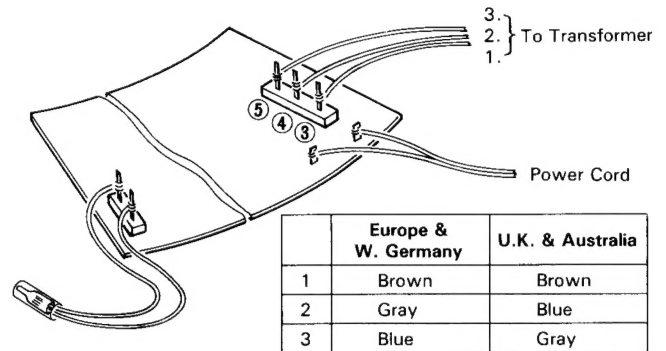
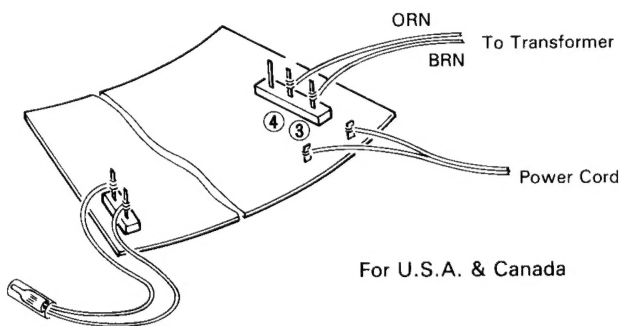
1. Set the volume (semi-fix VR-S) (VR-801) on the Power P.C. Board to the center.
2. Set the speed button to 33-1/3 RPM. Press the start button to turn the platter.

3. Adjust with the volume (VR-1) on the motor P.C. Board so that the strobo pattern (33-1/3 RPM) on the platter seems to stand still.

4. Next, switch over to 45 RPM and confirm that the strobo pattern (45 RPM) seems to stand still.

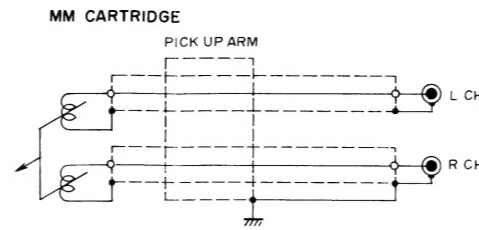
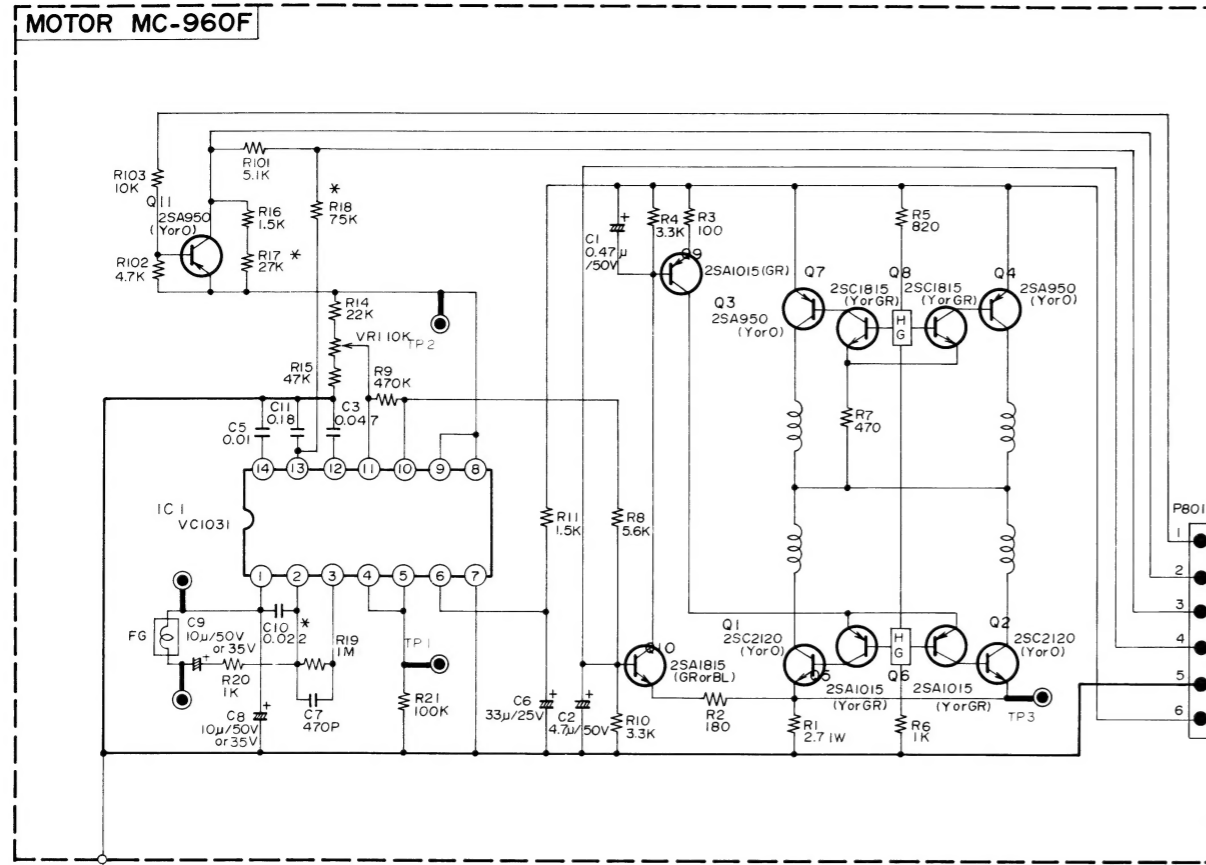
**Note:** It is alright if there is only a small movement.

## 7. Power Cord Connections in Different Areas

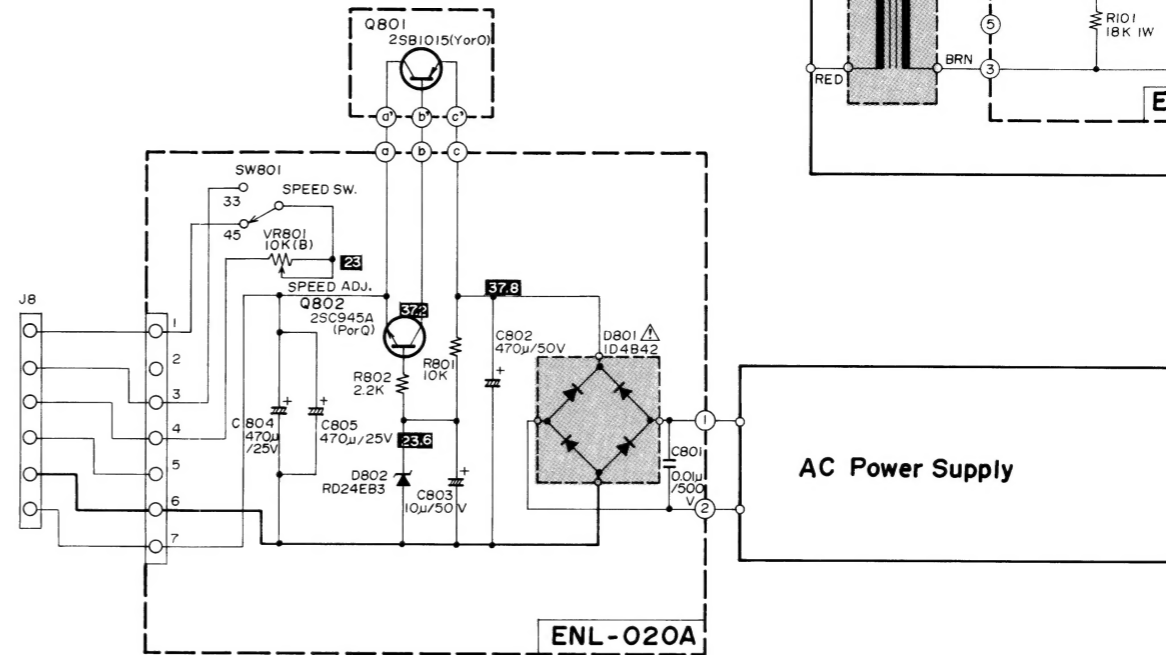
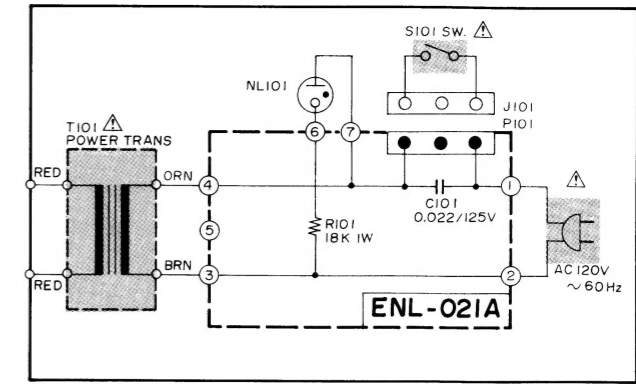


For U.S. Military Market  
& Other Countries

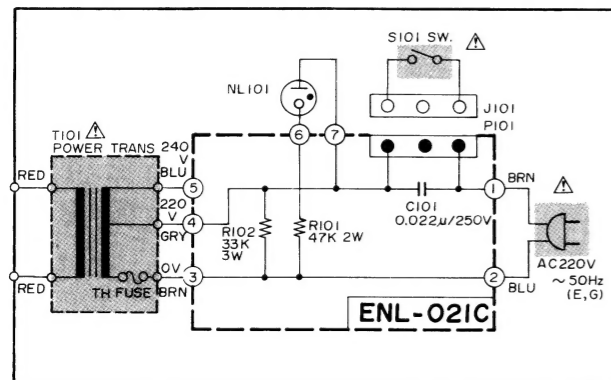
# 8. L-F210 Schematic Diagram



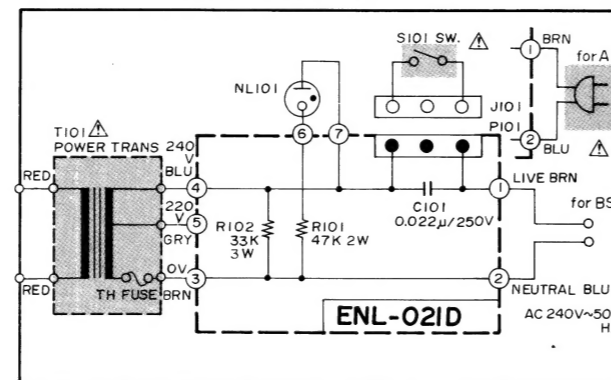
J & C (for USA & Canada)



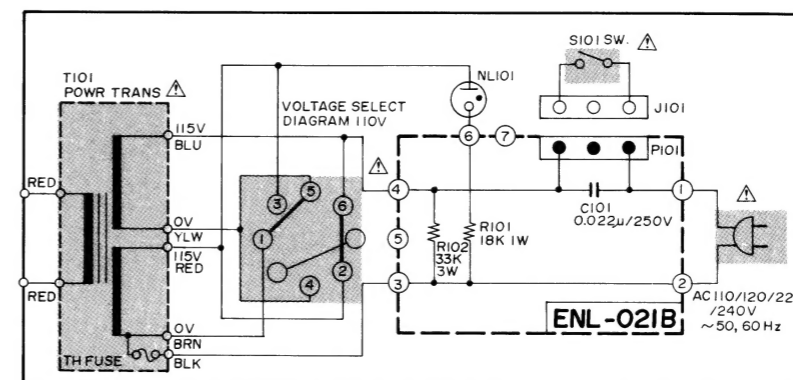
E & G (for Europe & W. Germany)



BS (for U & K)  
A (for Australia)

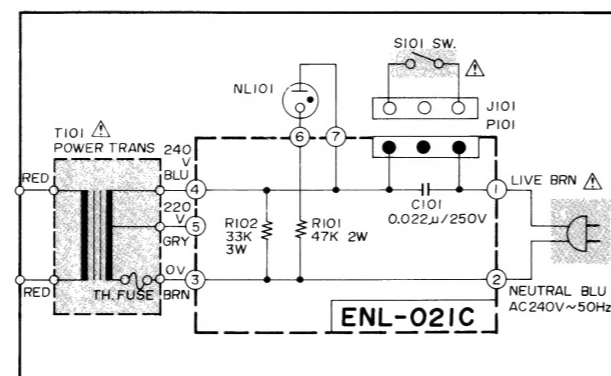


P & U (for U.S. Military Market & Other areas)



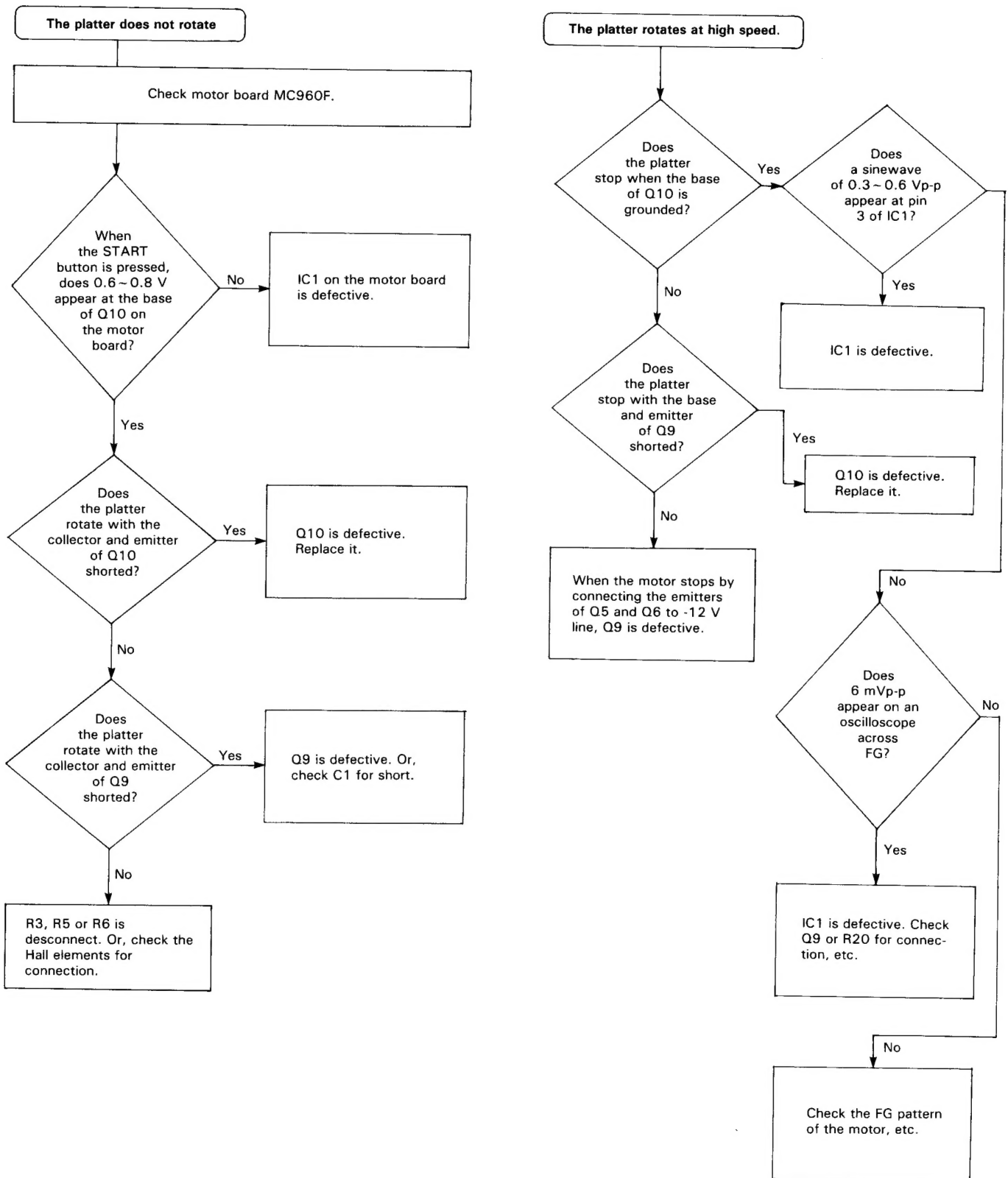
VOLTAGE	110V	120V	220V	240V
CONNECTION	1-5, 2-6	1-4, 3-6	2-5	3-4

A (for Australia)



# 9. Trouble Shooting

## 9-(1) When turntable operation is abnormal





# PARTS LIST

## Contents

Main Parts Location .....	2-2
Exploded Views and Parts List .....	2-3
• Tonearm Ass'y U.S.A., Canada (with out Cartridge) and All others (with Cartridge) .....	2-3
• Tonearm Ass'y U.S.A. (with Cartridge) .....	2-4
• Mechanism Base Ass'y .....	2-5
• Mechanism Ass'y .....	2-6
Printed Circuit Board Ass'y and Parts List .....	2-8
• ENL-021 Power Supply P.C. Board Ass'y .....	2-8
• ENL-20A Volume P.C. Board Ass'y .....	2-9
• MC-960F Motor Drive P.C. Board Ass'y .....	2-10
Packing Materials and Part Numbers .....	2-11
Accessories List .....	2-13

# Main Parts Location

Front View

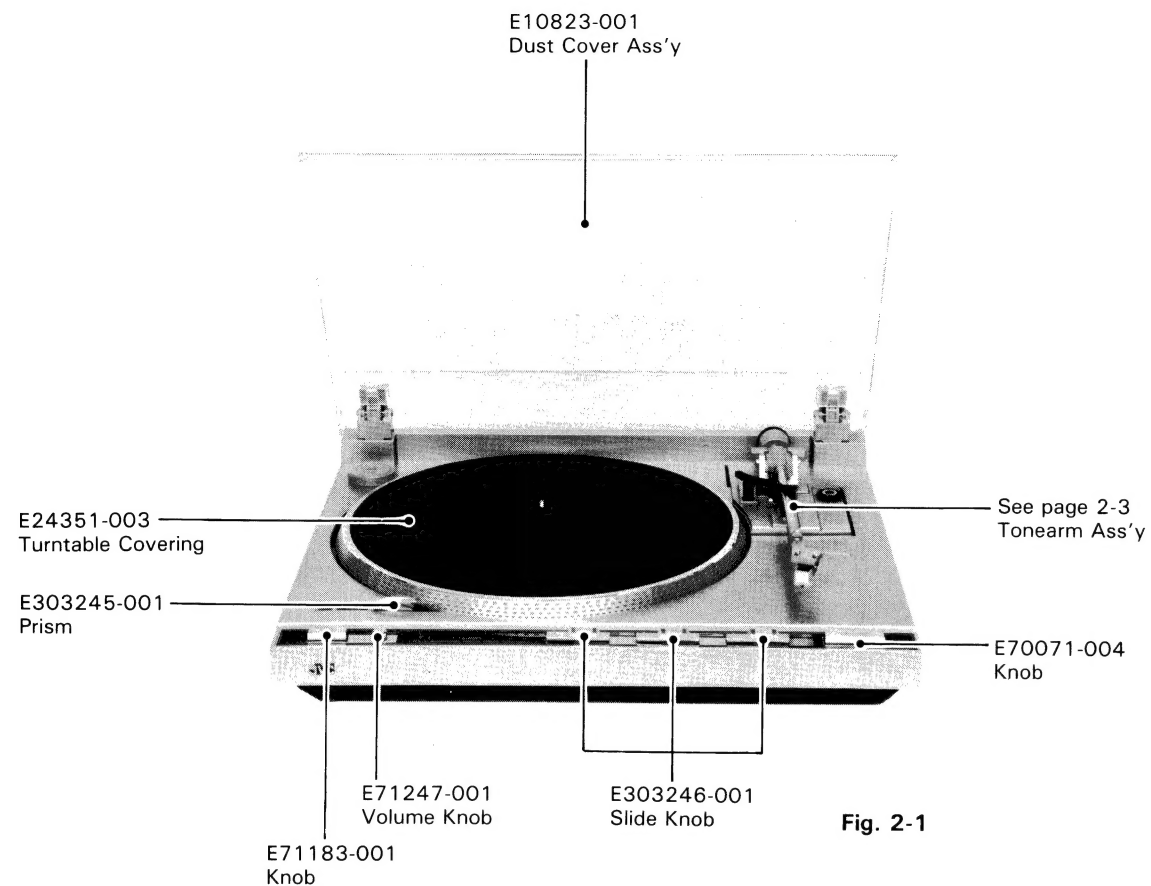


Fig. 2-1

Top View

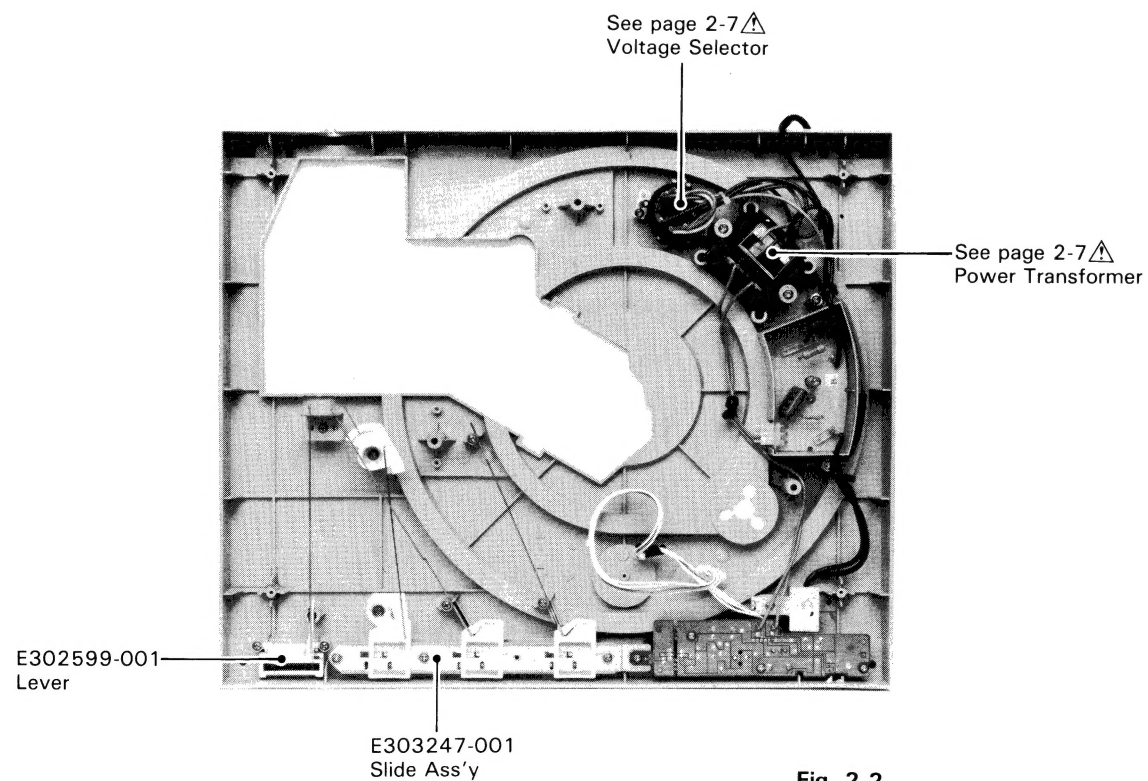


Fig. 2-2

⚠ : Safety Parts

# Exploded View and Parts List

Tonearm Ass'y U.S.A., Canada (with out Cartridge) and All others (with Cartridge)

(Type A)

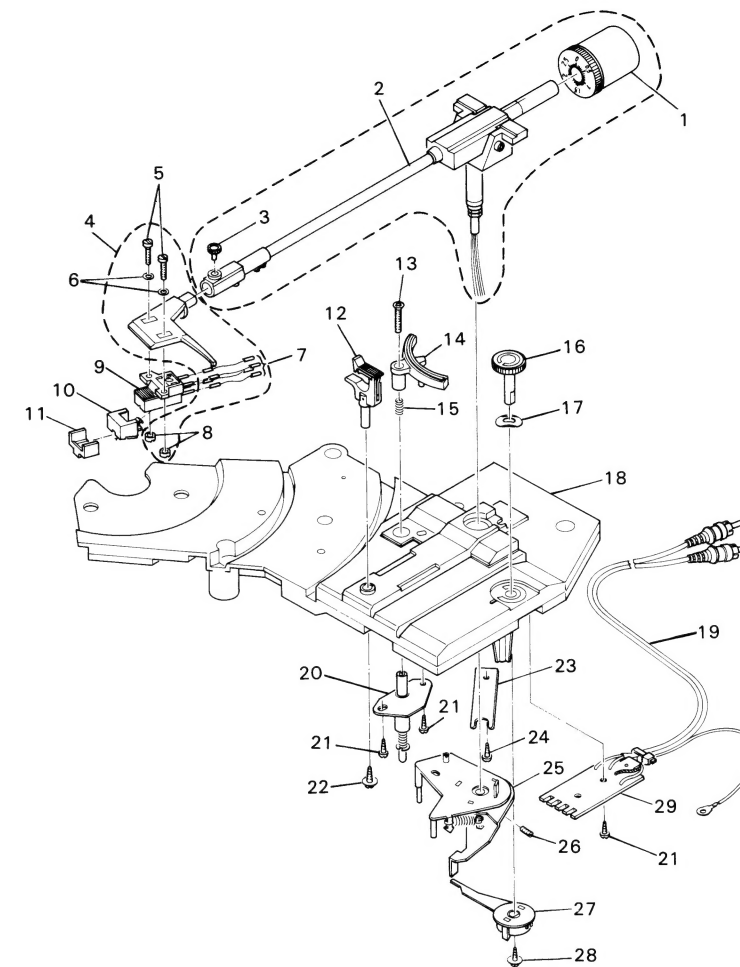


Fig. 2-3

No.	Part Number	Part Name	Q'ty	Description	Area
1	E70113-001	Main Weight Ass'y	1	Silver	
	E70113-002	Main Weight Ass'y	1	Black	
2	E24734-001	Tonearm Ass'y	1	Silver	
	E24734-002	Tonearm Ass'y	1	Black	
3	E67604-002	Screw	1	Silver	
4	E67604-001	Screw	1	Black	
	E302423-005	Headshell Ass'y	1	Silver	
	E302423-007	Headshell Ass'y	1	Black	
5	E60502-001	Screw	2		
6	E68310-004	Washer	2		
7	E67609-001	Wire Ass'y	1		
8	E60503-001	Nut	2		
9	MD1055Z	Cartridge Body Ass'y	1		U,P,PG,A,E,ES,G,BS
10	DT-55	Stylus Ass'y	1		
11	E70329-001	Stylus Cover	1		
12	E65824-008	Rest Ass'y	1	Silver	
	E65824-003	Rest Ass'y	1	Black	
13	SSSP3016M	Screw	1		
14	E65829-006	Elevator Ass'y	1	Silver	
	E65829-004	Elevator Ass'y	1	Black	
15	E49649-001	Spring	1		

No.	Part Number	Part Name	Q'ty	Description	Area
16	E301238-003	Anti Scating Knob	1	Silver	
	E301238-004	Anti Scating Knob	1	Black	
17	E49602-004	Wave Washer	1		
18	E10956-001	Pick Up Base	1	Silver	J,C
	E10956-003	Pick Up Base	1	Black	J,C
	E10956-002	Pick Up Base	1	Silver	U,P,PG,A,E,ES,G,BS
	E10956-004	Pick Up Base	1	Black	U,P,PG,A,E,ES,G,BS
19	EWP301-002	Signal Cord	1		J
	EWP303-006	Signal Cord	1		U,P,PG,C,A,E,ES,G,BS
20	E71191-001	Cueing Ass'y	1		
21	SBSF3008Z	Screw	3		
22	GBSF3012Z	Screw	1		
23	E70094-001	Stopper	1		
24	SBSF3006Z	Screw	1		
25	E71192-001	Arm Lever Ass'y	1		
26	YWS4006FS	Set Screw	1		
27	E68342-002	Anti Scating Ass'y	1		
28	SBSF3006Z	Screw	1		
29	E68441-002	Signal Circuit Board	1		

**The Marks for Designated Areas.**

- J ..... U.S.A. (with Out Cartridge)
- C ..... Canada (with Out Cartridge)
- E ..... Europe
- G ..... West Germany
- A ..... Australia
- P,PG ..... U.S. Military Market
- ES ..... Spain
- BS ..... U.K.
- U ..... Other Countries

**Tonearm Ass'y U.S.A. (with Cartridge)**

(Type B)

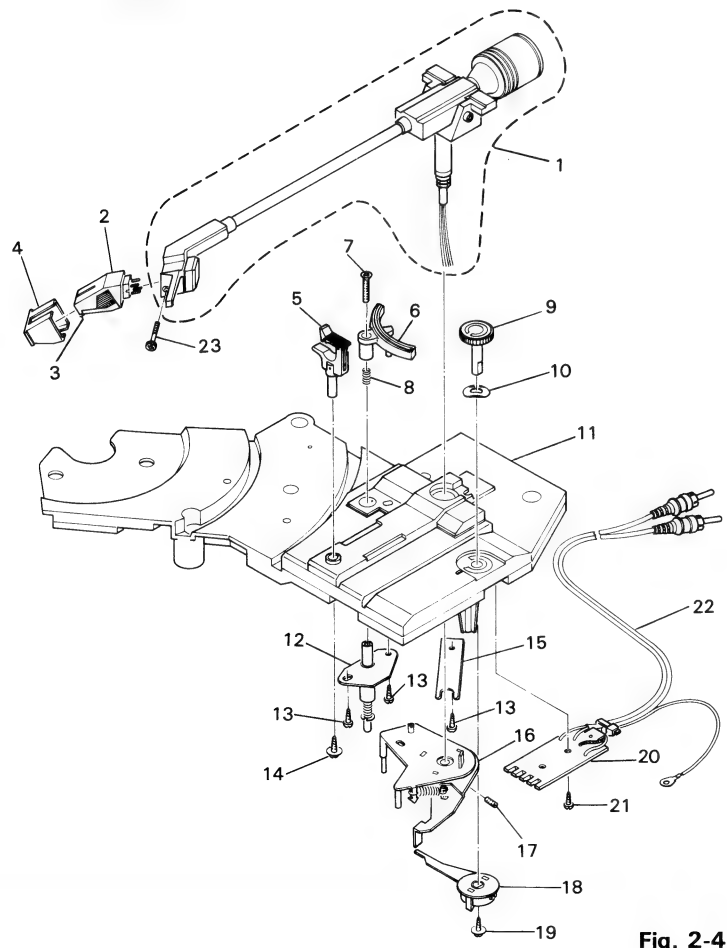


Fig. 2-4

No.	Part Number	Part Name	Q'ty	Description
1	E24676-001	Tonearm Ass'y	1	Silver
	E24676-002	Tonearm Ass'y	1	Black
2	MD1045Z	Cartridge	1	
3	DT-45(E)	Stylus	1	
4	E70328-001	Needle Cover	1	
5	E65824-008	Rest Ass'y	1	Silver
	E65824-003	Rest Ass'y	1	Black
6	E65829-006	Elevator Ass'y	1	Silver
	E65829-004	Elevator Ass'y	1	Black
7	SSSP3016M	Screw	1	
8	E49649-001	Spring	1	
9	E301238-003	Anti Scating Knob	1	Silver
	E301238-004	Anti Scating Knob	1	Black
10	E49602-004	Wave Washer	1	
11	E10956-001	Pick Up Base	1	Silver
	E10956-003	Pick Up Base	1	Black
12	E71191-001	Cueing Ass'y	1	
13	SBSF3008Z	Screw	2	
14	GBSF3012Z	Screw	1	
15	E70094-001	Stopper	1	
16	E71192-001	Arm Lever Ass'y	1	
17	YWS4006FS	Set Screw	1	
18	E68342-002	Anti Scating Ass'y	1	
19	SBSF3006Z	Screw	1	
20	E68441-002	Signal Circuit Board	1	
21	SBSF3008Z	Screw	1	
22	EWP301-002	Signal Cord	1	
23	E70390-002	Screw	1	

**Mechanism Base Ass'y**

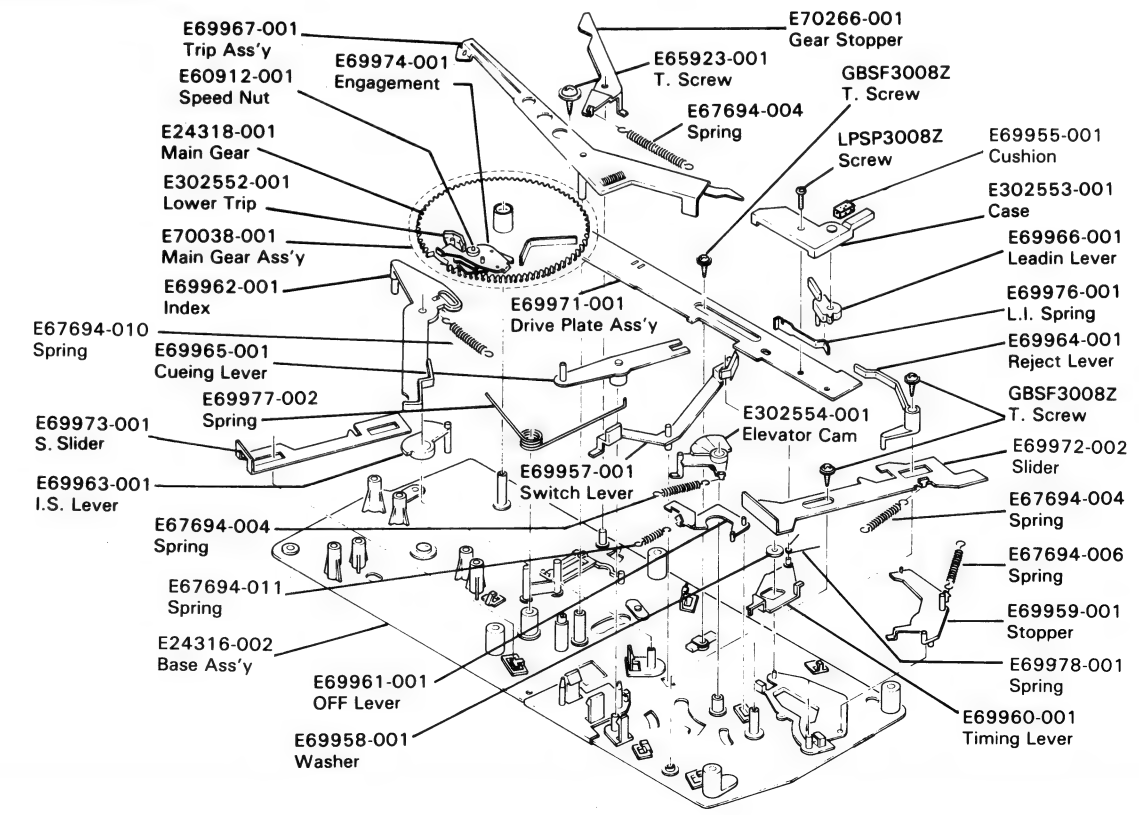


Fig. 2-5

Mechanism Ass'y

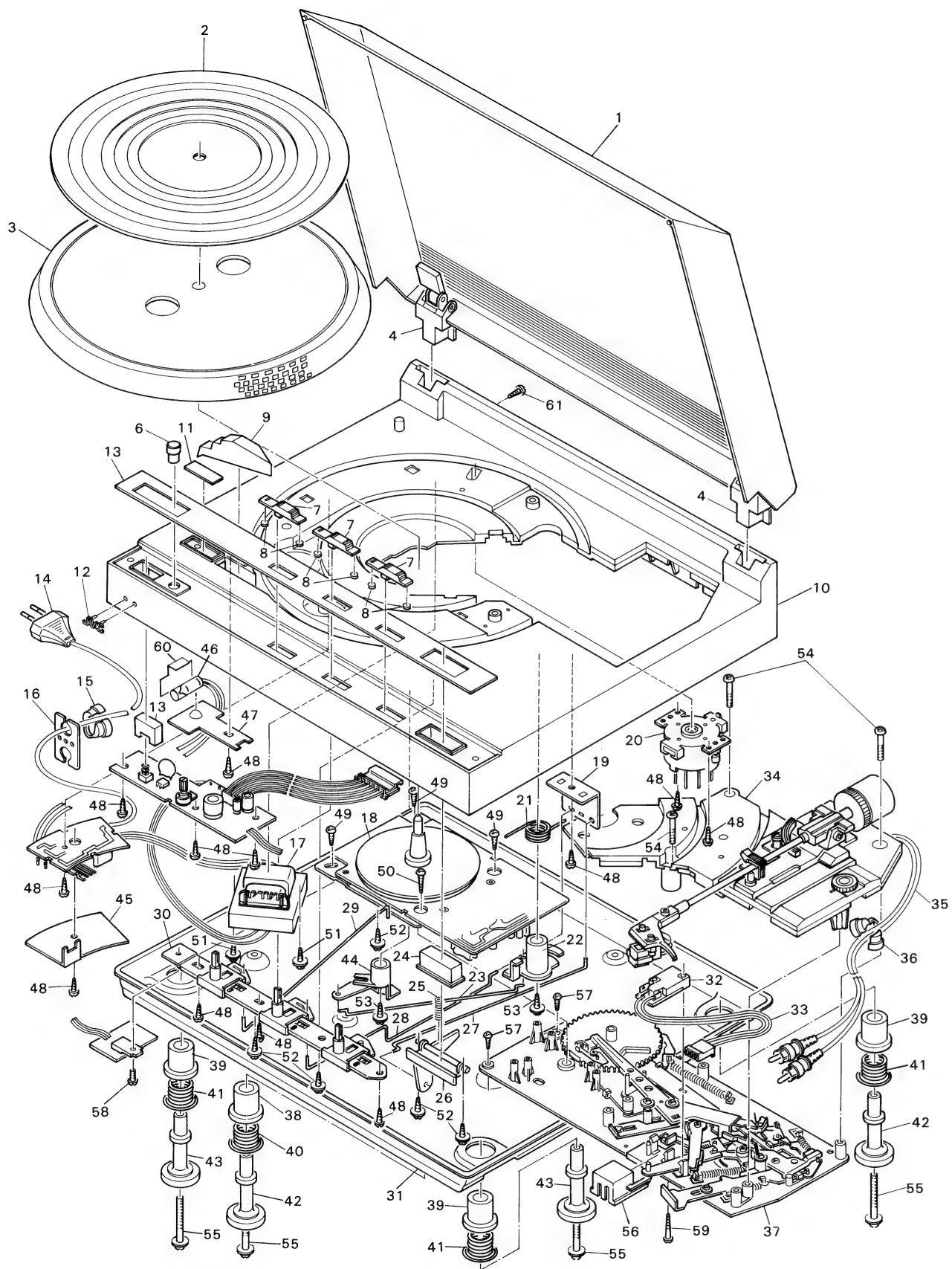


Fig. 2-6

No.	Part Number	Part Name	Q'ty	Description	Area
1	E10823-001	Dust Cover Ass'y	1		J,C,U,P,PG,E,A,ES,G,BS
2	E24351-003	Turntable Covering	1		
3	E24672-001	Turntable	1		
4	E70081-001 E70081-002	Hinge Ass'y Hinge Ass'y	2 2	Silver Black	J,C,U,P,PG,E,A,ES,G,BS J,C,U,P,PG,E,A,ES,G,BS
5	E71183-001	Knob	1	for Speed	
6	E71247-001	Volume Knob	1		
7	E303246-001	Slide Knob	3		
8	E70315-001	Knob Sheet	6		
9	E303245-001	Prism	1		
10	ETA-LF210J ETA-LF210BJ ETA-LF210E ETA-LF210BE E71190-001	Cabinet Cabinet Cabinet Cabinet Ornament	1 1 1 1 1	Silver Black Silver Black	J,JCT,C J,JCT,C A,E,ES,G,U,P,PG,BS A,E,ES,G,U,P,PG,BS
12	E71248-001 E71248-002	JVC Mark JVC Mark	1 1	Silver Black	
13	E24673-001	Ornament	1		
△ 14	QMP1200-200 QMP7600-250	Power Cord Power Cord	1 1		J,JCT,C U,P,PG
△ 15	QMP3900-200 QMP2560-244 QMP9017-008BS QHS3876-162 QMP3876-162BS	Power Cord Power Cord Power Cord Cord Stopper Cord Stopper	1 1 1 1 1	E,G,ES A BS	J,JCT,C,E,ES,A,G,U,P,PG BS
16	E69884-002	Cord Holder	1		
△ 17	ETP1000-27JA ETP1000-27ZA ETP1000-27EA ETP1000-27EABS	Power Transformer Power Transformer Power Transformer Power Transformer	1 1 1 1		J,JCT,C U,P,PG E,ES,A,G BS
18	MC960F	Motor Ass'y	1		
△ 19	E70079-001	Rod Holder	1		
20	QSR0085-008U	Voltage Selector	1		U,P,PG
21	E70080-002	Spring	1		
22	E302598-001	Cueing Lever	1		
23	E71188-001	Cueing Rod	1		
24	E70071-004	Knob	1	for START/STOP	
25	E61194-007	Spring	1		
26	E302599-001	Lever	1		
27	E70100-001	START Rod	1		
28	E71187-001	Repeat Rod	1		
29	E71186-001	Size Rod	1		
30	E303247-001	Slider Ass'y	1		
31	E10822-001	Bottom Board	1		
32	QSM1V12-107	Micro Switch	1		J,JCT,C
33	QSM1V12-104 QSM1V12-104BS EWS073-001 EWS073-002 EWS073-003BS	Micro Switch Micro Switch Socket Wire Socket Wire Socket Wire	1 1 1 1 1		E,ES,A,G,U,P,PG BS J,JCT,C,U,P,PG E,ES,A,G BS
34	See Page 2-3, 2-4, 2-5	Tonearm Ass'y	1		
35	EWP301-002 EWP303-006	Signal Cord Signal Cord	1 1		J,JCT C,A,E,ES,G,U,P,PG,BS
36	QHS3876-162	Cord Stopper	1		
37	See Page 2-5	Mechanism Base Ass'y	1		
38	E69854-001	Insulator	1	Black	
39	E69854-006	Insulator	3	Gray	
40	E69855-004	Spring	1	Blue	
41	E69855-003	Spring	3	Red	
42	E70042-001	Foot	2	Rear	
43	E70373-001	Foot	2	Front	
44	E71184-001	Cueing Lever	1		
45	E71249-001	Plate	1		
46	QLN3104-103 QLN3104-104	Neon Lamp Neon Lamp	1 1		J,JCT,C,E,A,ES,G U,P,PG
47	QLN3104-103BS	Neon Lamp	1		BS
48	E71185-001	Stopper	1		
48	SBSF3008Z	Screw	10		
49	SBSF3010Z	Screw	3		
50	SBST3030Z	Screw	1		
51	E65923-001	Screw	2		
52	GBSF3008Z	Screw	5		
53	GBSF3012Z	Screw	2		
54	SBST3025Z	Screw	3		for P.U. Base
55	GBSF3045Z	Screw	4		
△ 56	E71180-001	Safety Case	1		
57	SBST3008Z	Screw	3		
58	LPSP3008Z	Screw	1		
59	SBSF3035Z	Screw	1		for P.U. Base
60	E71590-001	Mirror Plate	1		
61	LPSP3006Z	Screw	1		

The Marks for Designated Areas.

- J ..... U.S.A. (with Out Cartridge)
- JCT ..... U.S.A. (with Cartridge)
- C ..... Canada (with Out Cartridge)
- E ..... Europe
- G ..... West Germany
- A ..... Australia
- P,PG ..... U.S. Military Market
- ES ..... Spain
- BS ..... U.K.
- U ..... Other Countries

△: Safety Parts

# Printed Circuit Board Ass'y and Parts List

ENL-021 □ Power Supply P.C. Board Ass'y  
 Note: ENL-021 □ Varies according to the areas employed. See Note (1)

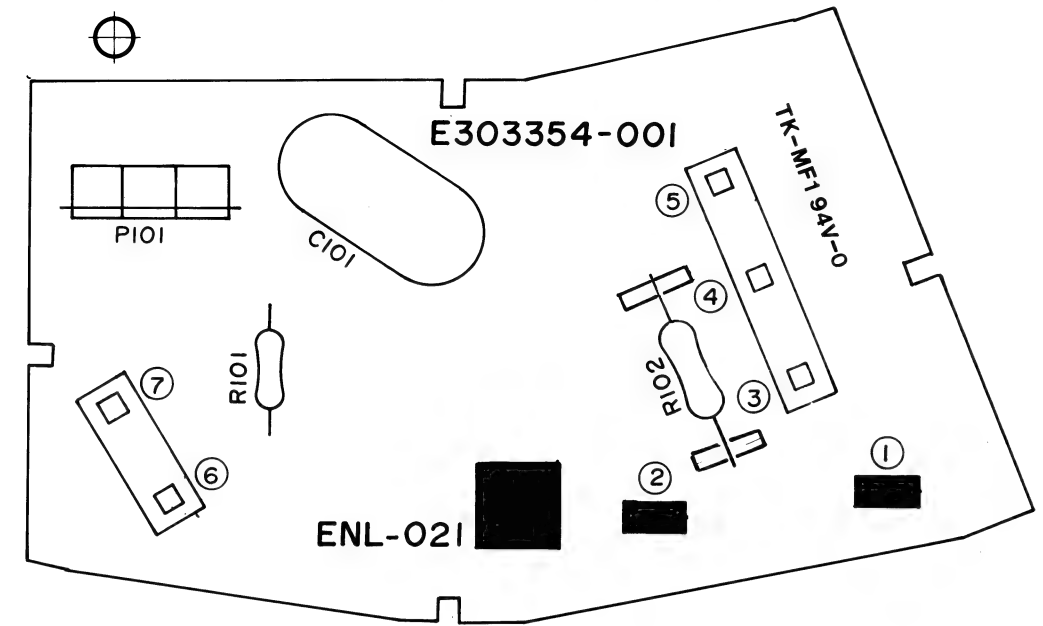


Fig. 2-7

**See Note (1)**  
 ENL-021A U.S.A. & Canada  
 ENL-021B U.S. Military Market & Other Countries  
 ENL-021C Europe, Australia, Spain & West Germany  
 ENL-021DBS U.K.

## ENL-20A Volume P.C. Board Ass'y

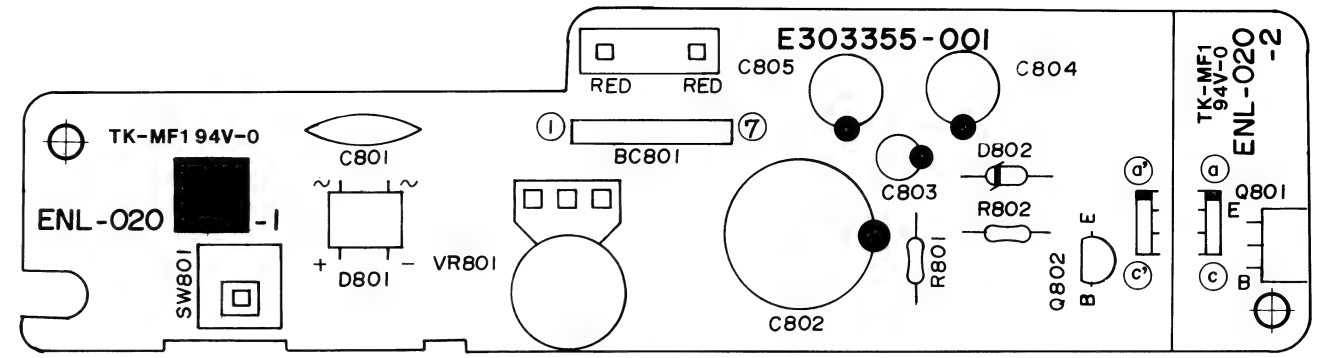


Fig. 2-8

Item No.	Part Number	Rating	Part Name	Ver.
Q801	2SB1015(O,Y)		Transistor	
Q802	2SC945A(P,Q)		Transistor	
D801	1D4B42		Diode	
D802	RD24EB3		Zener Diode	
C801	QCE22HP-103	0.01 MF 500 V	Ceramic Capacitor	
C802	QEU51HM-477	470 MF 50 V	Electrolytic Capacitor	
C803	QETB1EM-106	10 MF 50 V	Electrolytic Capacitor	
C804	QETB1EM-477	470 MF 25 V	Electrolytic Capacitor	
C805	QETB1EM-477	470 MF 25 V	Electrolytic Capacitor	
R801	QRD148J-103S	10 K 1/4 W	Carbon Resistor	
R802	QRD148J-222S	2.2 K 1/4 W	Carbon Resistor	
VR801	QVK6A2B-014V	10 K	Variable Resistor	
SW801	QSP2256-001 E67764-202 EWR33B-08SS		Push Switch Wrapping Terminal Flat Wire	
	EWS207-002 E303355-001		Socket Wire Circuit Board	

Item No.	Part Number	Rating	Part Name	Ver.
C101	QFZ9019-223	0.022 MF	M. Mylar Capacitor	△ A
C101	QFZ9020-223	0.022 MF	M. Mylar Capacitor	△ B
C101	QFZ9020-223	0.022 MF	M. Mylar Capacitor	△ C
C101	QFZ9020-223MBS	0.022 MF	M. Mylar Capacitor	△ DBS
R101	QRG012J-183A	18 K 1 W	UNF. O. Film Resistor	△ A
R101	QRG012J-183A	18 K 1 W	UNF. O. Film Resistor	△ B
R101	QRG022J-473AF	47 K 2 W	UNF. O. Film Resistor	△ C
R101	QRG022J-473AF	47 K 2 W	UNF. O. Film Resistor	△ DBS
R102	QRG032J-333AF	33 K 3 W	UNF. O. Film Resistor	△ B
R102	QRG032J-333AF	33 K 3 W	UNF. O. Film Resistor	△ C
R102	QRG032J-333AF E67764-202 E67764-203 E65508-002 EMV5102-003B	33 K 3 W	UNF. O. Film Resistor Wrapping Terminal Terminal Ass'y Tab 3P Plug Ass'y	DBS
	E303354-001 E303354-001 E303354-001 E303354-001BS E71545-001		Circuit Board Circuit Board Circuit Board Circuit Board Holder	A B C DBS B
	E71545-001 E71545-001		Holder Holder	C DBS

△ : Safety Parts

# MC960F Motor Drive P.C. Board Ass'y

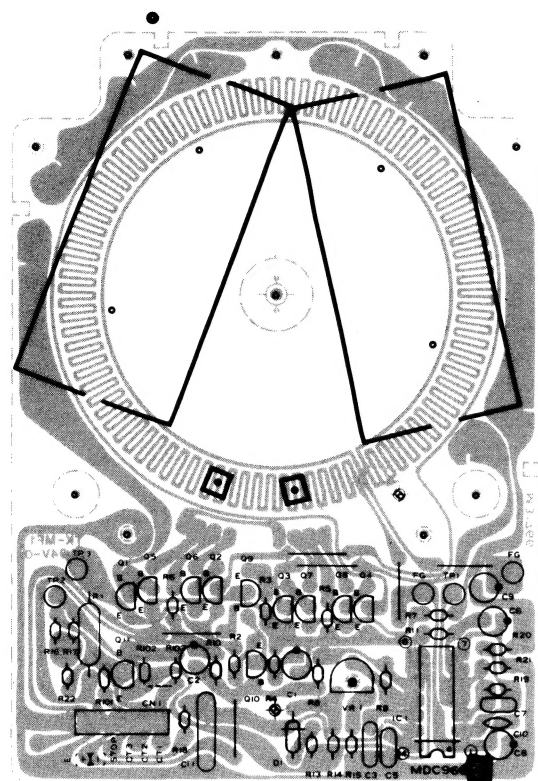


Fig. 2-9

Item	Part Number			Description
Q1	2SC2120(Y,O)			Transistor
Q2	2SC2120(Y,O)			Transistor
Q3	2SA950(Y,O)			Transistor
Q4	2SA950(Y,O)			Transistor
Q5	2SA1015(Y,GR)			Transistor
Q6	2SA1015(Y,GR)			Transistor
Q7	2SC1815(Y,GR)			Transistor
Q8	2SC1815(Y,GR)			Transistor
Q9	2SA1015(GR)			Transistor
Q10	2SC1815(GR,BL)			Transistor
IC1	VC1031(L,M)			I.C
C1	QET41HM-474	0.47 MF	50 V	Electrolytic Capacitor
C2	QET41HM-475	4.7 MF	50 V	Electrolytic Capacitor
C3	QFN41HK-473	0.047 MF	50 V	Mylar Capacitor
C5	QFN41HJ-103	0.01 MF	50 V	Mylar Capacitor
C6	QET41EM-336	33 MF	25 V	Electrolytic Capacitor
C7	QFN41HK-471	470 pF	50 V	Mylar Capacitor
C8	QET41HM-106	10 MF	50 V	Electrolytic Capacitor
C9	QET41HM-106	10 MF	50 V	Electrolytic Capacitor
C10	QCF31HP-223	0.022 MF	50 V	Ceramic Capacitor
C11	QFN41HK-184	0.18 MF	50 V	Mylay Capacitor
R1	QRX019J-2R7	2.7	1 W	M. Film Resistor
R2	QRD167J-181	180	1/6 W	Carbon Resistor
R3	QRD167J-101	100	1/6 W	Carbon Resistor
R4	QRD167J-332	3.3 k	1/6 W	Carbon Resistor
R5	QRD167J-821	820	1/6 W	Carbon Resistor
R6	QRD167J-102	1 k	1/6 W	Carbon Resistor
R7	QRD167J-471	470	1/6 W	Carbon Resistor
R8	QRD167J-562	5.6 k	1/6 W	Carbon Resistor
R9	QRD167J-474	0.47 MF	1/6 W	Carbon Resistor
R10	QRD167J-332	3.3 k	1/6 W	Carbon Resistor
R11	QRD167J-152	1.5 k	1/6 W	Carbon Resistor
R14	QRD167J-223	22 k	1/6 W	Carbon Resistor
R15	QRD167J-473	47 k	1/6 W	Carbon Resistor
R16	QRD167J-132	1.3 k	1/6 W	Carbon Resistor
R17	QRV146F-2702		1/4 W	M. Film Resistor
R18	QRV146F-7502		1/4 W	M. Film Resistor
R19	QRD167J-105	1 M	1/6 W	Carbon Resistor
R20	QRD167J-102	1 k	1/6 W	Carbon Resistor
VR1	V6EK1S-103	10 k		Variable
CN1	QMV5004-006			Micro Conector
HG1	VHE-101			Hall Generator
HG2	VHE-101			Hall Generator

# Packing Materials and Part Numbers

U.S.A., Canada (with out Cartridge) and All Others (with Cartridge)  
(Type A)

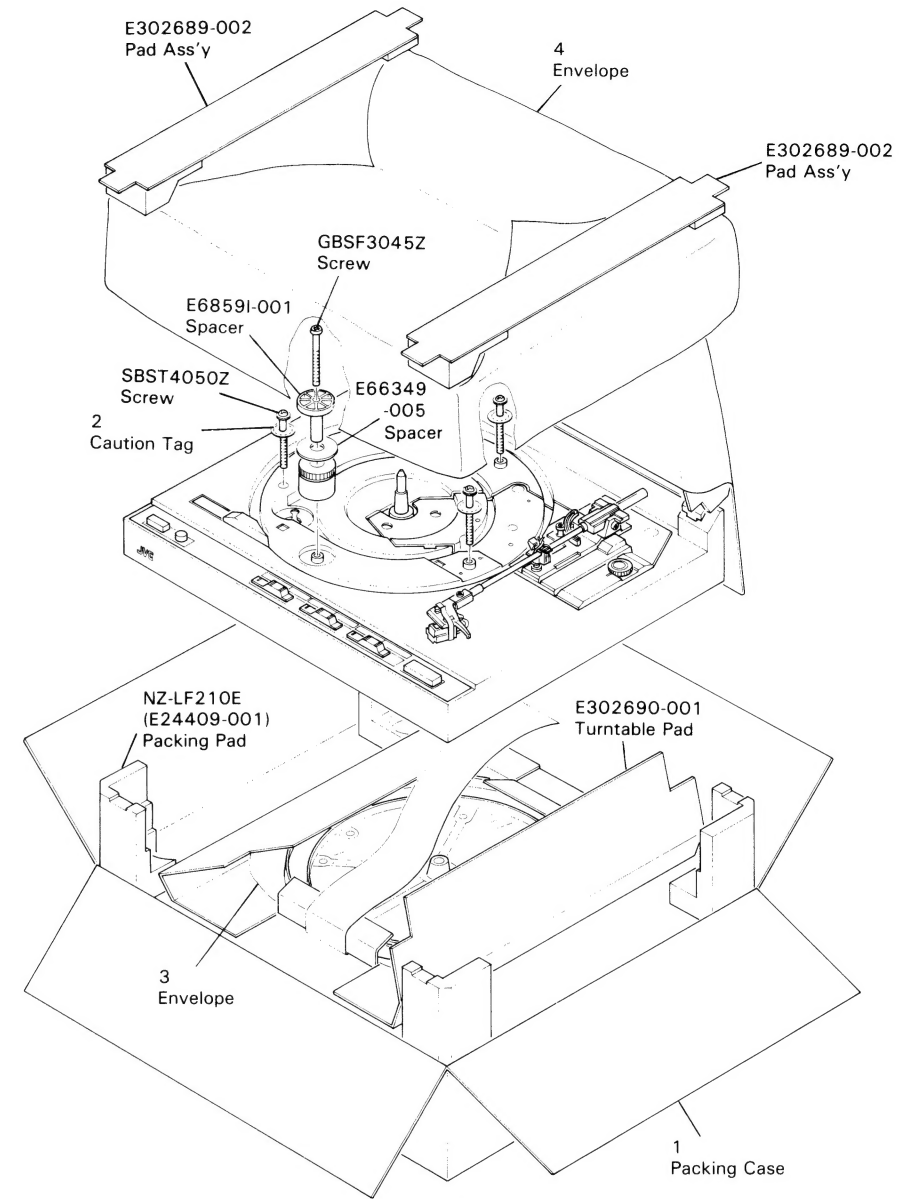


Fig. 2-10

No.	Part Number	Part Name	Description	Area
1	PK-LF210E	Packing Case	E24718-011(Silver)	J,C,A,E,U,P,PG,G,BS
	PK-LF210BE	Packing Case	E24718-014(Black)	J,C,A,E,U,P,PG,G,BS
	PK-LF210ES	Packing Case	E24718-013(Silver)	ES
2	PK-LF210BES	Packing Case	E24718-016(Black)	ES
	E70405-001	Caution Tag		J,C,A,E,U,P,PG,G,BS
3	E70405-003	Caution Tag		ES
	E300196-039	Envelope	for Turntable	J,C,A,E,U,P,PG,ES
4	E300196-039B	Envelope	for Turntable	BS
	E300196-022	Envelope	for Set	J,C,A,E,U,P,PG,ES
	E300196-022B	Envelope	for Set	BS

**The Marks for Designated Areas.**

- |           |                         |            |                      |
|-----------|-------------------------|------------|----------------------|
| J .....   | U.S.A.                  | P,PG ..... | U.S. Military Market |
| JCT ..... | U.S.A. (with Cartridge) | ES .....   | Spain                |
| C .....   | Canada                  | BS .....   | U.K.                 |
| E .....   | Europe                  | U .....    | Other Countries      |
| G .....   | West Germany            |            |                      |
| A .....   | Australia               |            |                      |

# Packing Materials and Part Numbers

U.S.A., Canada (with out Cartridge) and All Others (with Cartridge)  
(Type A)

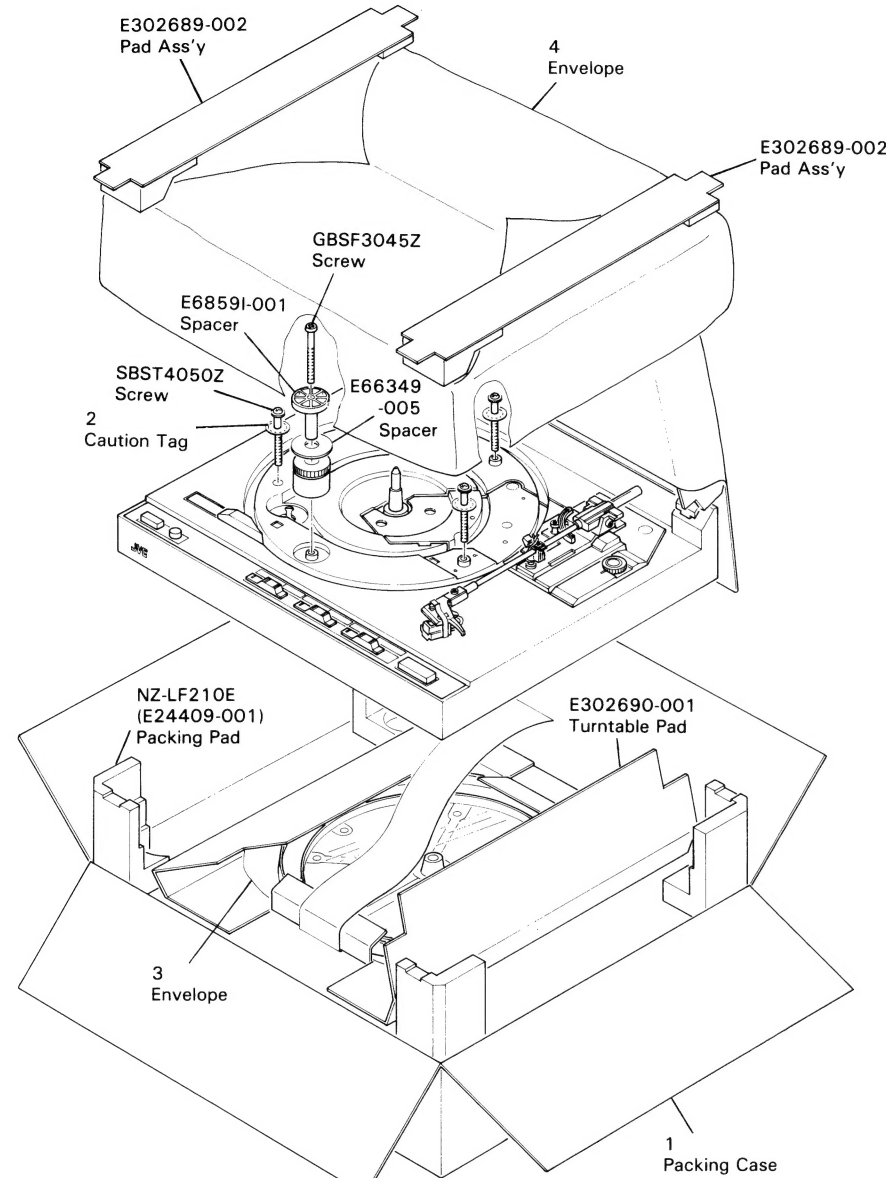


Fig. 2-10

No.	Part Number	Part Name	Description	Area
1	PK-LF210E	Packing Case	E24718-011(Silver)	J,C,A,E,U,P,PG,G,BS
	PK-LF210BE	Packing Case	E24718-014(Black)	J,C,A,E,U,P,PG,G,BS
	PK-LF210ES	Packing Case	E24718-013(Silver)	ES
	PK-LF210BES	Packing Case	E24718-016(Black)	ES
	E70405-001	Caution Tag		J,C,A,E,U,P,PG,G,BS
3	E70405-003	Caution Tag		ES
	E300196-039	Envelope	for Turntable	J,C,A,E,U,P,PG,ES
4	E300196-039B	Envelope	for Turntable	BS
	E300196-022	Envelope	for Set	J,C,A,E,U,P,PG,ES
	E300196-022B	Envelope	for Set	BS

**The Marks for Designated Areas.**

- |           |                         |            |                      |
|-----------|-------------------------|------------|----------------------|
| J .....   | U.S.A.                  | P,PG ..... | U.S. Military Market |
| JCT ..... | U.S.A. (with Cartridge) | ES .....   | Spain                |
| C .....   | Canada                  | BS .....   | U.K.                 |
| E .....   | Europe                  | U .....    | Other Countries      |
| G .....   | West Germany            |            |                      |
| A .....   | Australia               |            |                      |

U.S.A. only (with Cartridge)  
(Type B)

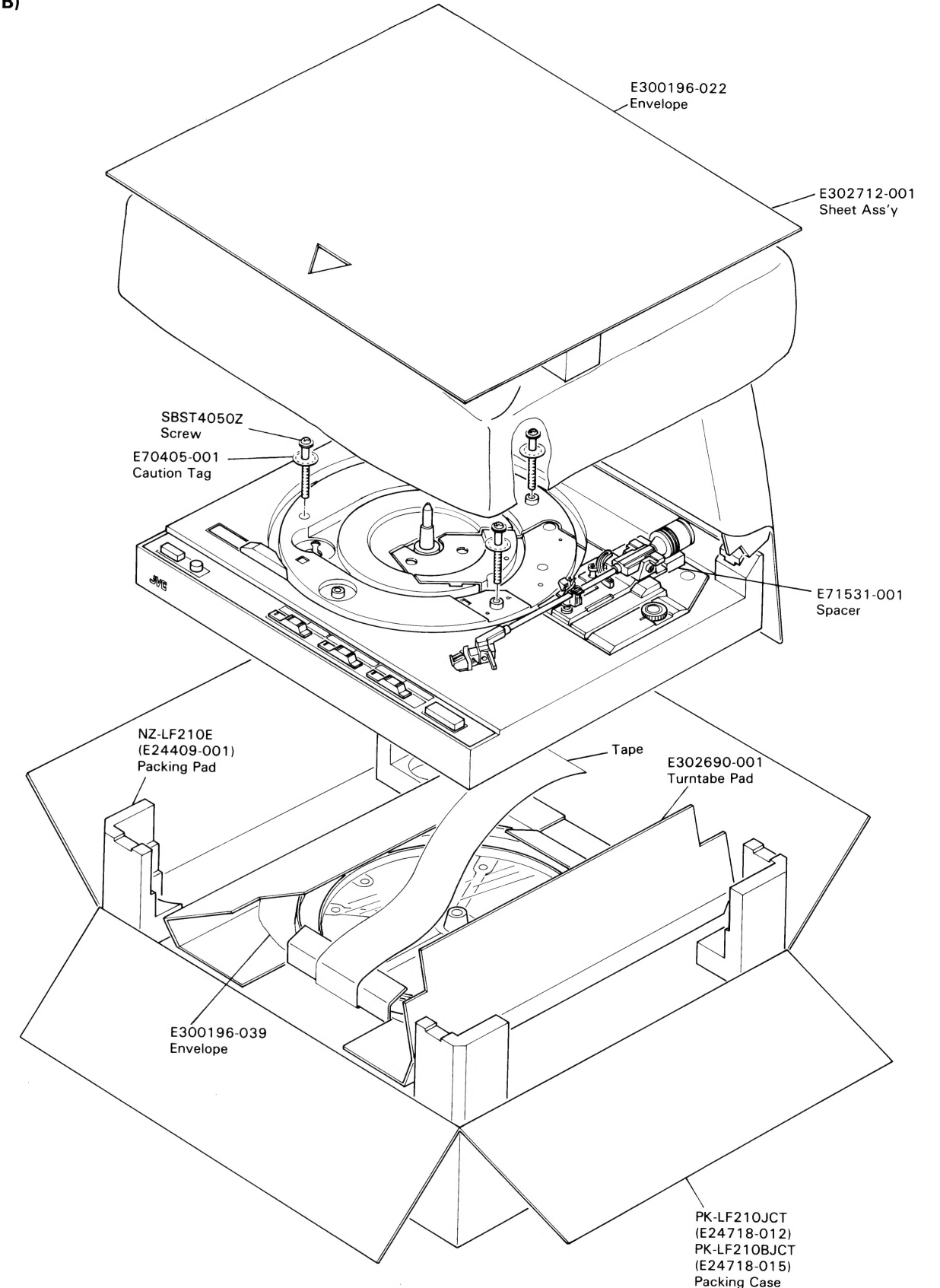


Fig. 2-11

# Accessories List

Part Number	Part Name	Q'ty	Description	Area
E30580-1167A	Instruction Book	1		J,JCT,C,U,P,E,A,G,ES,PG
E30580-1167ABS	Instruction Book	1		BS
E300196-010	Envelope	1	Inst	A,C,E,ES,G,J,JCT,P,PG,U
E300196-010B	Envelope	1		BS
E66329-002	EP Adaptor	1	Silver	
E66329-001	EP Adaptor	1	Black	
BT20047A	Warranty Card	1		J,JCT,P,PG
BT20025G	Warranty Card	1		C
BT20029C	Warranty Card	1		A
BT20060	Warranty Card	1		BS
BT20064	Warranty Card	1		G
BT20066	EEC Agency	1		BS,G
BT20046B	Service Information	1		J,JCT,P,PG
BT20071	Service Information	1		C
BT20044D	Safety Information	1		J,JCT
E35497-017	Caution Sheet	1		P
E35497-019	Caution Sheet	1		PG,U
E04056	Seimens Plug	1		PG,U
E66416-003	Envelope	1		J,JCT

## The Marks for Designated Areas.

J .....	U.S.A.
JCT .....	U.S.A. (with Cartridge)
C .....	Canada
E .....	Europe
G .....	West Germany
A .....	Australia
P,PG .....	U.S. Military Market
ES .....	Spain
BS .....	U.K.
U .....	Other Countries





# JVC

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